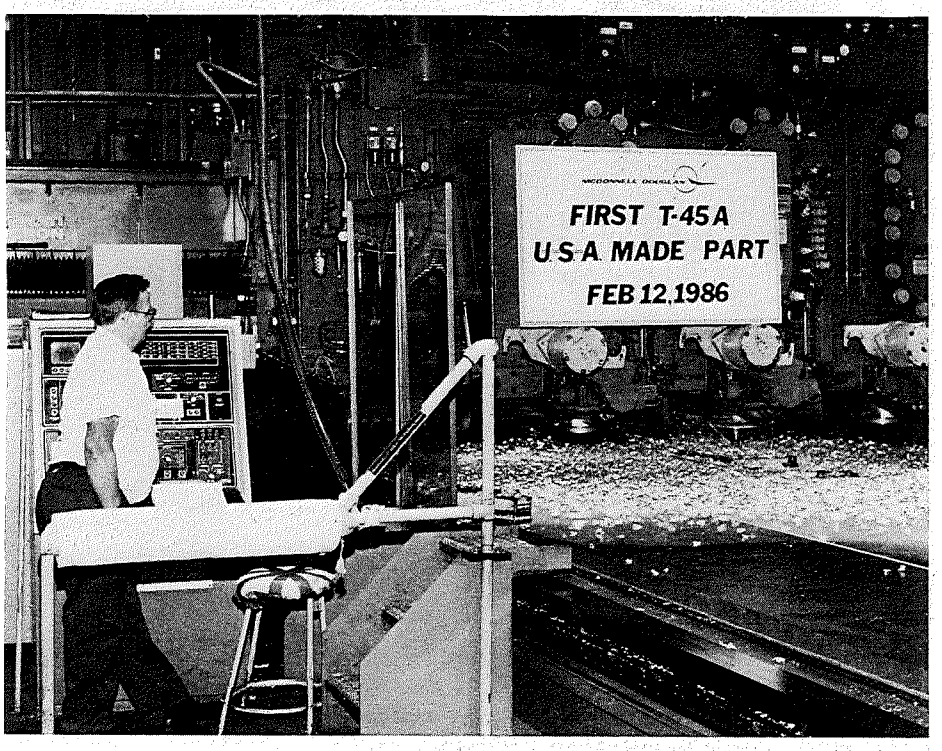
DAC machines first T-45 production part



Machinist Al Hardin uses a computer-controlled machine at the Torrance plant to cut a 36-inch-long piece of aluminum that will form part of the T-45A Goshawk's lower fuselage. This is the first production part machined for the U.S. Navy's advanced jet trainer. Final assembly of the first aircraft is scheduled to begin this summer.

Douglas Aircraft Company began production of the U.S. Navy T-45A Goshawk advanced jet trainer amid a shower of gleaming chips machined from high-strength aluminum.

The first fuselage frame section for the T-45A was produced at the Torrance facility using the latest computer-aided design and manufacturing systems. The success of this first machined part was the result of a test run of the CAD/CAM system on a prototype aluminum longeron in December (please see related story on page 3).

Other components and major subassemblies for the T-45 will be manufactured in England by British Aerospace, a principal subcontractor to McDonnell Douglas in the Goshawk program. Final assembly of the aircraft will be done at the Long Beach facility.

Modified for aircraft carrier operations, the T-45A Goshawk is a derivative of the British Aerospace Hawk that is now in service with the Royal Air Force in England and in six other countries.

The task of cutting the first piece of metal for the T-45 was assigned to Al Hardin, a machinist who has worked at the Torrance facility for 19 years. Hardin operates a computer-controlled milling machine that cuts the aluminum into three-foot by two-inch frame sections.

On hand for the occasion were Jim Worsham, DAC president, and Jack Crosthwait, vice president and general manager of the T45TS program and special products. The T-45TS is a student pilot training program which includes the T-45A aircraft, flight simulators, computerized instructional programs, and a logistics support system.

The U.S. Navy selected the McDonnell Douglas team for development of the T45TS in November 1981 and awarded a full-scale development contract in October 1984.

As the prime contractor on the T45TS program, DAC is in charge of program integration. British Aerospace is the principal subcontractor for the aircraft, Sperry is the principal

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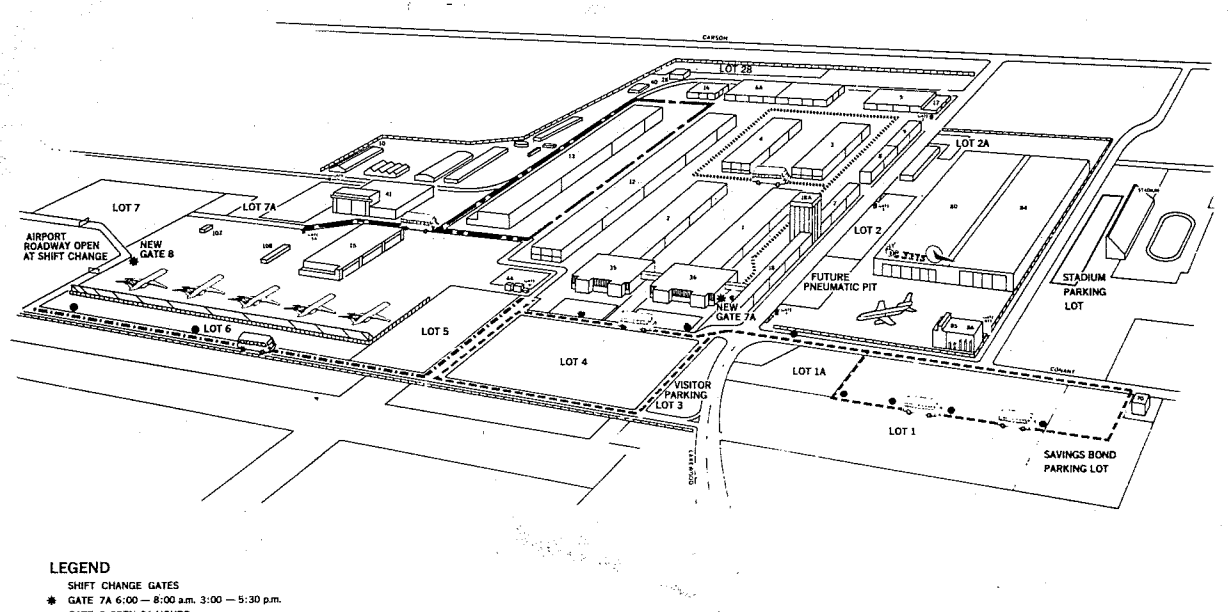
MCDONNELL DOUGLAS

DOUGLAS AIRCRAFT COMPANY

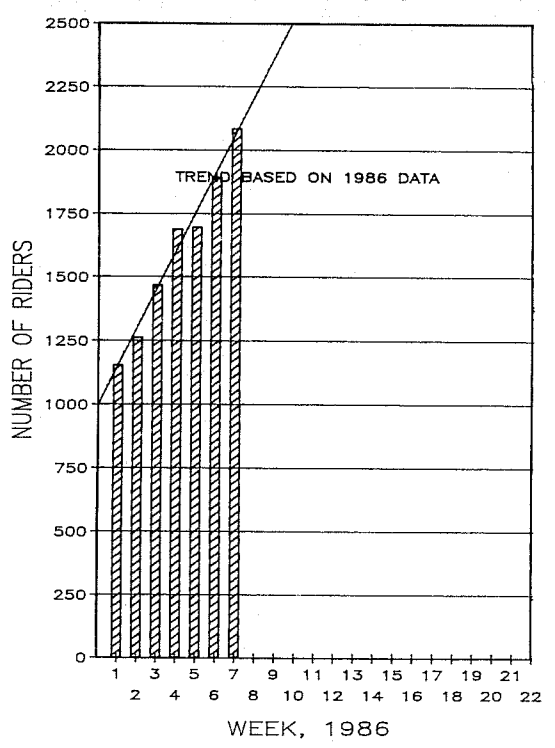
Monday, February 24, 1986

DOUGLAS AIRCRAFT COMPANY
LONG BEACH PARKING LOT SHUTTLE SYSTEMS



LEGEND
SHIFT CHANGE GATES
✱ GATE 7A 6:00 — 8:00 a.m. 3:00 — 5:30 p.m.
GATE 8 OPEN 24 HOURS
MOVABLE BARRICADE
GATE 5A IN-PLANT SHUTTLE 6:00 — 8:00 a.m. 3:00 — 6:00 p.m.
GATE 7A IN-PLANT SHUTTLE 6:00 — 8:00 a.m. 3:00 — 5:30 p.m.
LOT 1 PARKING LOT SHUTTLE 6:00 — 8:00 a.m. 3:00 — 6:00 p.m.
LOT 6 PARKING LOT SHUTTLE 6:00 — 8:00 a.m. 3:00 — 6:00 p.m.

Parking Lot Shuttle Bus System
Average Daily Ridership by Week

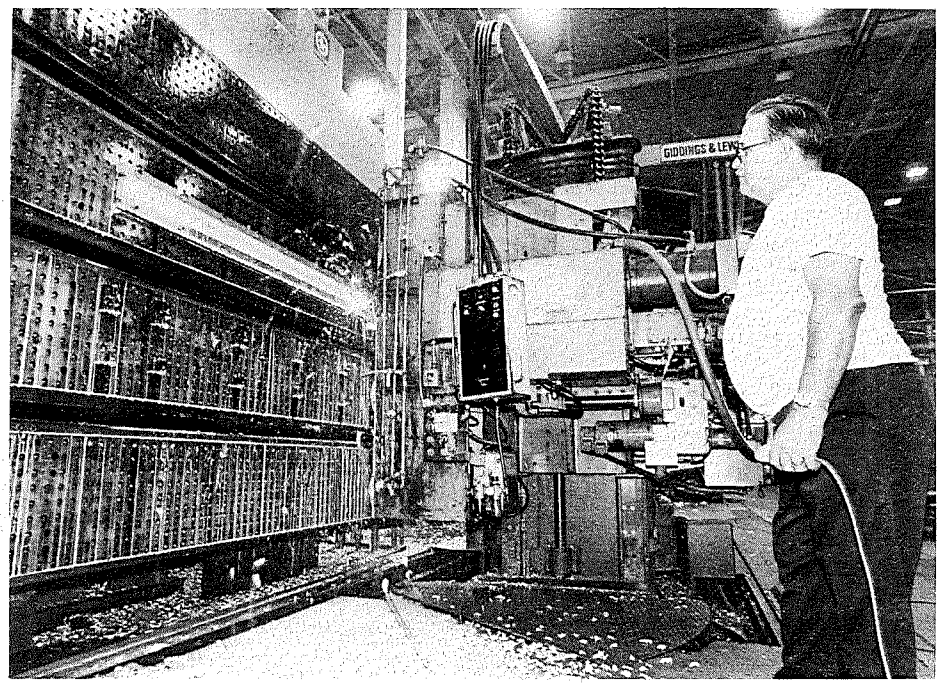


Shuttle buses increase in popularity

The parking shuttle bus system is gaining increased use by DAC employees parking in Lot 1 (Conant Street lot) and Lot 6 (behind the blast fence). Ridership is increasing at about 10 percent per week and has more than doubled since the first of the year.

More than 2,100 people per day were using the two bus lines last week. Beginning March 3, when the new parking plan goes into effect, the Lot 1 bus will mate with the new in-plant tram "people mover" at the southeast corner of Building 36 (new Gate 7A) for transporting employees to the north end of the plant.

Parking administrators began distributing windshield parking stickers today, and will continue distribution through Friday, February 28.



Al Hardin, Torrance machinist, observes the cutting of a prototype longeron for the U.S. Navy's T-45A Goshawk advanced jet trainer. It was fabricated from a bar of aluminum using a "picture frame" technique. This was the first time a part had been machined entirely within a CAD/CAM environment.

T-45 prototype demonstrates CAD/CAM system efficiency

T-45A Goshawk's first prototype parts were machined using a computer-aided design and manufacturing system in early December. They are a set of aluminum longerons upon which the aircraft's canopy will rest.

According to Kent Roberts, CAD/CAM manager for the T45TS program, these are the first parts to be machined entirely within a CAD/CAM environment. "Structural design generated three-dimensional computer models of the longerons," explained Roberts.

These three-dimensional models are the source that defines the parts and the production drawing. "These models were used by the numerically controlled program operators at the Torrance facility to fabricate the longerons."

Roberts noted that N/C programming engineers enhanced the engineering CAD/CAM data base, utilizing the CADD system and established a "road map." This road map was used as a guide for developing the cutter path in the automatic programmed tool (APT). This computer language, in turn, generated the numerical data that guided the cutter around the part during the machining operation

The T-45A longerons were machined using a "picture framing" technique. "Picture framing means that a large piece of material, in this case aluminum, was bolted to a numerically controlled machine. The part then was machined within the confines of the cut material," stated Jim Lehenbauer, section manager, N/C Programming. "This process saves in tooling and fabrication time."

Each discipline within the manufacturing cycle, such as Planning, Tooling, and N/C Programming, has access to the original CAD/CAM data base, in addition to any enhancements that may have been made in the production process.

Roberts stated that Quality Assurance engineers do not have access to the enhancement data. "They access only the original, single-source data base. From this data base, Quality engineers create Quality Planning Instruction Sheets used to inspect and verify T-45A parts."

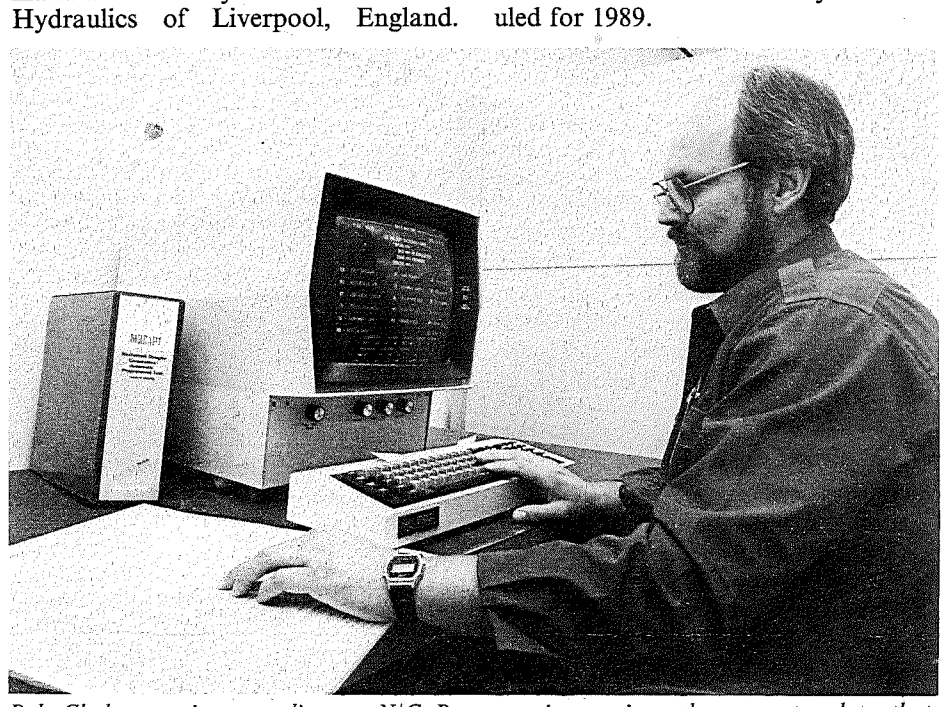
DAC machines first T-45 production part

Continued from page 1

subcontractor for simulators, and Rolls Royce is the principal subcontractor for engines.

British Aerospace will make the aircraft's windshield, canopy, wings, aft fuselage section, and flight controls. The main landing gear will be manufactured by A. P. Precision Hydraulics of Liverpool, England. The nose landing gear will be built by Cleveland Pneumatic of Cleveland, Ohio.

Assembly of the first of 302 T-45 aircraft is scheduled to begin early this summer in Long Beach. Delivery of the first aircraft to the Navy is scheduled for 1989.



Bob Chabot, project coordinator, N/C Programming, reviews the computer data that guided the numerically controlled machine used to produce the prototype longeron for the T-45A.

DAC delivers cost, contract segment of Air Force One proposal on time

DAC's cost and contract segment of the Air Force One proposal has been completed and sent to the United States Air Force by the February 14 deadline according to Dave Moore, Government Program Development.

The cost and contract segment of the proposal deals with how much it will cost DAC to get the Air Force One program started, and how much it will cost to maintain over a 30-year period.

DAC is vying with Boeing to win the contract from the Air Force that calls for replacement of a pair of Boeing 707s that are used to transport the president and his staff. The present Air Force One transports are more than 20 years old. DAC is proposing its DC-10 Series 30 aircraft as the presidential transport replacement. Boeing is offering its 747.

The technical portion of DAC's Air Force One proposal was submitted to the Air Force on January 31.

management club news

Scholarship program under way
Applications and eligibility requirements are available from DACMC Boosters.
Deadline for filing is April 11, 1986
Contact Sherry Kopp, extension 31234, for details

Long Beach Civic Light Opera presents "The Merry Widow" at Terrace Theater
Friday, March 14, 1986 at 8:00 p.m.
Orchestra seating: $17.00 per person
For tickets call Les TerBorch, extension 31712

Seminar
February 27, 1986
5:00 to 7:00 p.m.
Product Display conference room D
Featuring: Dr. James Melton
Contact Marlyn Kietzman (extension 37871) for reservations

The Lunchtime Series Featuring Things You'll Want to Know about DAC

15-MINUTE TALK, Q&A SESSION EVERY THURSDAY. BRING YOUR LUNCH. THURSDAY, FEBRUARY 27

The F-4 Phantom Jet (Film)	**11:30 a.m.**	**Bldg 82, Col 17D1**
Wills and Probate	**11:30 a.m.**	**Bldg 4, Col 9A1**
Salaried Retirement	**12:30 p.m.**	**Bldg 2, Col 1.5AB1**
The Sleeping Giant (Film)	**11:30 a.m.**	**Torrance – Bldg 61, Lunch Room**
The Sleeping Giant (Film)	**11:30 a.m.**	**Bldg 73, 4th Floor**
The Sleeping Giant (Film)	**12:00 noon**	**Bldg 200, Col 14B1, Conf Rm 1**
The Sleeping Giant (Film)	**12:00 noon**	**Bldg 52, Col 17D2**